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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/031,136 | 06/03/2002 | Lee Sprague | 100746-9/Halocarbon 221 | 8154 |

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| EXAMINER | |
|---|---|
| PRICE, ELVIS O | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 1621 | |

DATE MAILED: 07/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/031,136 | SPRAGUE ET AL. | |
| | Examiner | Art Unit | |
| | Elvis O. Price | 1621 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *01 April 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-12* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *3, 4, 6, 7-9, 11 and 12* is/are allowed.

6)☒ Claim(s) *1,2,5 and 10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

1. Claims 1-12 are pending in the application.

2. Applicants arguments, filed 4/1/04, were found convincing to overcome the 35 USC 103(a) rejection of claims 3 and 6.

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Voight et al. {US Pat. 4,898,645}.

Applicants claim, in brief a process for preparing an aliphatic fluorocarbon product comprising breaking at least one chemical bond of an aliphatic fluorocarbon starting compound to form a reactive aliphatic fluorocarbon intermediate; reacting the intermediate with another compound to form the aliphatic fluorocarbon product and optionally to some undesired aliphatic fluorocarbon products; separating the desired aliphatic fluorocarbon product form undesired aliphatic fluorocarbon products; and recycling any undesried aliphatic fluorocarbon products to the first step.

Voight et al. teach a process for preparing an aliphatic fluorocarbon product(s) comprising pyrolyzing an aliphatic fluorocarbon compound (chlorodifluoromethane) to form a reactive aliphatic fluorocarbon intermediate which reacts with another reactive intermediate to form the desired aliphatic fluorocarbon products (see Example 1).

Voight et al. teach the separation of undesired products from the desired aliphatic fluorocarbon products (see Col. 5, lines 8-57). The difference between Voight et al. is Voight et al. teach the recycling of residual starting material while applicants claim the recycling of undesired aliphatic fluorocarbon products, if any are produced. However, such a difference is not patentably distinct because it would not have been unreasonable for one having ordinary skill in the art to view any residual starting material contained in the desired aliphatic fluorocarbon products produced by Voight et al. as "undesirable". The residual starting material would have been view by persons having ordinary skill in the art, as impurities contained in the desired product produced by Voight et al. The fact that they (residual starting material) are starting material and recycled does no way imply that they are not "undesired" components in the final desired aliphatic fluorocarbon product produced by Voight et al.

It would have been *prima facie* obvious to one having ordinary skill in the art, in view of Voight et al. reference, to arrive at the presently claimed invention because Voight et al. teach a process for preparing an aliphatic fluorocarbon product(s) comprising pyrolyzing an aliphatic fluorocarbon compound (chlorodifluoromethane) to form a reactive aliphatic fluorocarbon intermediate which reacts with another reactive intermediate to form the desired aliphatic fluorocarbon products.

One having ordinary skill in the art would have been motivated to recycle the residual starting material as an undesired contaminant in the desired final product in an effort to increase the yield and purity of the said desired final product.

Claims 1, 5 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Difelice et al. {Combust. Sci. and Tech., 1996, 116-117 (1-6), pp. 5-30; abstract only}.

Difelice et al. teach a process for preparing 1,1,1,2,3,4,4,4-octafluoro-2-butene (perfluoro-2-butene) comprising pyrolyzing 1-chloro-1,2,2,2-tetrafluoroethane (2-chloro-1,1,1,2-tetrafluoroethane) (see abstract). Difelice et al., also teach a process for preparing 1,1-dichloro-1,2,2,2-tetrafluoroethane ($CFCl_2CF_3$) comprising pyrolyzing 1-chloro-1,2,2,2-tetrafluoroethane (2-chloro-1,1,1,2-tetrafluoroethane) (see abstract). The difference between the presently claimed invention and what the Difelice et al. reference teaches is that the Difelice et al. reference does not teach separation and recycling of any undesired fluorocarbon products, if any. However, Difelice et al. do not teach that any of the products generated from the pyrolysis reactions are undesirable and applicants' claim language does not exclude the non-production of "undesired aliphatic fluorocarbon products". Therefore, it would not have been unreasonable for one having ordinary skill in the art to presume that the aliphatic fluorocarbon products formed by the Difelice et al. pyrolysis process are all desirable products, which need not be separated and/or recycled to the first reaction step. Thus, the instantly claimed invention would have been obvious to one having ordinary skill in the art.

***Response to Arguments***

Applicants' arguments with respect to the previously rejected claims have been considered but are moot in view of the new ground(s) of rejection.

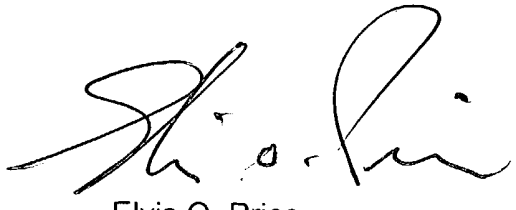
***Allowable Subject Matter***

The following is a statement of reasons for the indication of allowable subject matter: Claims 3, 4, 6, 7-9, 11 and 12 are unobvious over the prior art of record because the prior art of record does not teach or suggest preparing the recited fluorinated compounds by pyrolyzing the recited halogenated starting reactants or preparing the recited fluorinated compounds in greater than 50% yield.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elvis O. Price whose telephone number is 571 272-0644. The examiner can normally be reached on 8:30 am to 5:00 pm; Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Johann R. Richter can be reached on 571 272-0646. The fax phone numbers for the organization where this application or proceeding is assigned is 703 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 308-1235.



Elvis O. Price

July 11, 2004